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Document Number 2

Entry 2 of 4   File: USPT   Jul 27, 1999

US-PAT-NO: 5930808
DOCUMENT-IDENTIFIER: US 5930808 A

TITLE: Data conversion apparatus for data communication system
DATE-ISSUED: July 27, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Yamanaka; Kiyokazu	Ashiya	N/A	N/A	JPX
Okamura; Kazuo	Hirakata	N/A	N/A	JPX
Hirai; Junichi	Suita	N/A	N/A	JPX
Tanigawa; Hidekaau	Hirakata	N/A	N/A	JPX
Kawahara; Chihiro	Moriguchi	N/A	N/A	JPX

ASSIGNEE INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Matsushita Electric Industrial Co., Ltd.	Osaka	N/A	N/A	JPX	03

APPL-NO: 8/ 865092
DATE FILED: May 29, 1997
FOREIGN-APPL-PRIORITY-DATA:
FOREIGN-PRIORITY:
FOREIGN-PRIORITY-APPL-NO: JP 8-137103
FOREIGN-PRIORITY-APPL-DATE: May 30, 1996

INT-CL: [6] G06 T 1/00
US-CL-ISSUED: 707/501
US-CL-CURRENT: 707/501
FIELD-OF-SEARCH: 707/501, 707/500, 707/513, 707/516, 707/530, 707/524

REF-CITED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
5555380	September 1996	Suzuki	395/853
5557728	September 1996	Garrett et al.	345/340

FOREIGN PATENT DOCUMENTS

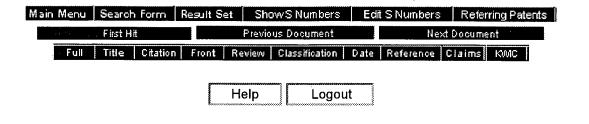| FOREIGN-PAT-NO	PUBN-DATE	COUNTRY
0723369	July 1996	EP
997265	August 1997	JP
99160	October 1997	JP

ART-UNIT: 276
PRIMARY-EXAMINER: Feild; Joseph H.
ASSISTANT-EXAMINER: Kindred; Alford W.
ATTY-AGENT-FIRM: Price Gess & Ubell

ABSTRACT:

A data conversion apparatus is provided as a data transmitting apparatus
in a data communication system which achieves pseudo interactive
communications by using one-way communications between the data
transmitting apparatus and a plurality of data receiving apparatuses. The
data conversion apparatus converts documents stored inside into images to
be displayed on the screen, such as a TV screen. In doing so, if the
document includes character strings or image information as link
destination information which specifies another document as a link
destination, the data conversion apparatus adds a supplementary design
into the image of the link destination information for the viewer to
recognize such information.
27 Claims, 48 Drawing figures

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| Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC |

Document Number 1

Entry 1 of 4   File: USPT   Oct 26, 1999

DOCUMENT-IDENTIFIER: US 5973692 A
TITLE: System for the capture and indexing of graphical representations
of files, information sources and the like

BSPR:
The present invention also provides a display layout generator for
generating layouts of sets of predetermined numbers of displayable
visual objects of predetermined dimensions into a display area of
predetermined dimensions. According to the present invention, the
display layout generator includes a possible layouts generator for
receiving a display space definition defining the dimensions of the
display area and a visual object definition defining the numbers and
dimensions of the visual objects to be arranged in the display area and
generating all possible layouts of the visual objects in the display
area by placing in a layout a visual object and searching forward with a
next visual object to identify a placement of the next visual object and
backtracking on each next placed visual object by removing the next
placed visual object and selecting and placing a different next visual
object until all combinations of visual objects and placements of visual
objects have been exhausted.

BSPR:
The display layout generator further includes a layout memory for
storing each arrangement of the set of visual objects in the display
area generated by the possible layouts generator, a layout test
mechanism for testing each new layout by comparing each new layout with
previously existing layouts to determine when the new layout has a
subpopulation of a previously existing layout or matches a previously
existing layout and when the previously existing layout has a
subpopulation of the new layout, wherein a subpopulation is a subset of
the visual objects, a layout previous/next selector for selecting the
new layout or the previously existing layout by discarding the new
layout when the new layout has a subpopulation of a previously existing
layout or matches a previously existing layout and replacing the
previously existing layout with the new layout when the previously
existing layout has a subpopulation of the new layout, a layouts
comparator for comparing pairs of layouts stored in the layout generator
memory and discarding any layout that contains a subpopulation of
another layout, and a layout table for storing the final layouts for use
in generating visual displays of the sets of visual objects in the
display areas.

BSPR:
According to the present invention, the layout generator may further
include a screen map generator for recevinging the display space
definition and the visual object definition and generating a screen map
corresponding to the defined display area and having instance locations
representing possible placement locations of the visual objects in the
display area, an instance pattern generator for receiving the screen map
and the visual object definition and generating, for each type of visual
object of the set of visual objects wherein a type of visual object is
defined by the dimensions of a visual object, at least one instance

pattern representing all possible instances of locations of the visual object in the screen map, and an instance pattern enumerator for enumerating the resulting instance patterns and providing the enumerated instance patterns to the possible layouts generator to be used as initial starting points in generating layouts.

BSPR:
The layout generator may further include a screen spatial division generator connected from the possible layouts generator for receiving the display space definition and the enumerated instances patterns and dividing the defined display area into spatial divisions along axes of symmetry, a location instances sorter for sorting, for each spatial division of the display area, the enumerated instance patterns of visual objects in each spatial division by visual object type, and generating a set of location instances of visual objects for each spatial division, a location instance search and compose mechanism for searching for and generating, from the sets of location instances of visual objects for each spatial division, at least one combination of location instances in at least one spatial division wherein each combination of location instances contains a combination of visual objects of the set of visual objects, and a super-object generator for designating each combination of visual objects as a visual super-object and providing the designations to the possible layouts generator as respresenting corresponding visual object.

BSPR:
Finally, the layout generator may also include a screen sub-area divider connected from the possible layouts generator for receiving the display area definition and dividing the display area into sub-areas and provide to the possible layouts generator a display space definition for each sub-area for use in generating layouts for each sub-area and a screen sub-area combiner connected from the layout comparator for composing layouts for the display area by combining the layouts for the sub-areas and provide the combined layouts to the layout comparator as the layout for the defined display area.

DEPR:
In this regard, it is discussed in the following detailed descriptions of a Visual Links Automatic Capture Engine 138 that it has been found preferable, in the presently preferred embodiment, that the dimensions and aspect ratios of the Graphic Icons 144 be selected to allow efficient packing into a given display area. For these reasons, the dimensions and proportions of Graphic Icons 144 are preferably selected from a relatively small set of possible dimensions and aspect ratios to allow the efficient organization, packing and display of Graphic Icons 144 in a directory window. The method for manual selection of an area of an image to be used in generating a Graphic Icon 144 thereby preferably represents to the user not only the original image, or a section of interest thereof, and the area selected by the user for possible use in generating the Graphic Icons 144, but also the possible Graphic Icons 144 that would result from the proposed selection.

DEPR:
Finally, the image information extracted from a graphics image, which may be of various dimensions and proportions, must be shaped into a Graphic Icon 144. In this regard, however, a single fixed aspect ratio, for example, of 3:4, for either the extracted graphics information or the Graphic Icon 144 is too constraining considering the possible areas or regions that may be selected from a given graphics image as most distinctive and most unique to that graphics image, both in itself and relative to other graphics images. It is preferable, however, to efficiently organize and display the maximum number of Graphic Icons 144 in, for example, a directory window, and, for this reason, the dimensions and aspect ratios of the Graphic Icons 144 will preferably be selected to allow efficient packing of any arbitrary set of icons into a given display area. For these reasons, the dimensions and proportions of Graphic Icons 144 are preferably selected from a relatively small set of possible dimensions and aspect ratios to allow the efficient organization, packing and display of Graphic Icons 144 in a directory

window.

DEPR:
Visual Link Capture Engine 138 will therefore provide an Visual Link Capture Engine 138 that automatically shapes the extracted image information into a Graphic Icon 144 selected from a relatively small set of possible dimensions and aspect ratios that are selected for efficient packing into a display area.

DEPR:
In a related problem, Visual Links Organizer 166 will provide a mechanism for efficient packing any arbitrary collection of Graphic Icons 144 having various dimensions and aspect ratios from that set of dimensions and aspect ratios into a display area.

DEPR:
In a presently preferred embodiment of the invention, the set of possible aspect ratios for the final Graphic Icons 144 have been chosen to include aspect ratios of 6.times.2 (units of height to width), 4.times.3, 3.times.4 and 2.times.6 as these aspect ratios result in Graphic Icons 144 having the same total area and because an arbitrary group of Graphic Icons 144 having these aspect ratios will pack efficiently into a given display area. The ultimate icons will therefore be resized, according to one exemplary set of sizes, to be 120 pixels high by 40 pixels wide, or 80 pixels high by 60 pixels wide, or 60 pixels high by 80 pixels wide, or 40 pixels high by 120 pixels wide, or they may be slightly less in one or both dimensions but will be deemed nominally to "occupy" these screen display areas. Accordingly, and because the region of the original image that has been selected as visually most distinctive and unique will rarely have one of these predetermined aspect ratios, a final adjustment of the area or region of graphic information that has been selected and extracted from the original image is necessary to conform the selected area or region to one of these predetermined aspect ratios.

DEPR:
A number of such adjustment processes are possible, and the presently preferred embodiment of the Visual Link Capture Engine 138 may or does use any or any combination of these adjustment processes. For example, in a first process, the icon may be left in the shape as extracted from the original image and placed in a final display into the best-fitting shape of area, leaving blank unused area on left and right, or on top and bottom. In a second process, the icon can be distorted by a vertical or horizontal stretch so that it fits such an area and, in a third process, the area from which the icon is cut may be extended either vertically or horizontally to match an acceptable shape while, in a fourth process, a combination of stretching, of up to, perhaps, 10%, may be combined with an extension of the source area. Finally, in yet another method, and if and where a background color can automatically be discerned, that color may be used to fill the extra area so that the icon's sides do not make a disconcerting cut through other visual objects in the vicinity.

DEPR:
In all cases, therefore, the Graphic Icons 144 are produced by appropriate scaling, so that they each occupy the same amount of screen area and pack efficiently into the display screen area, such as directory window. In addition, and as discussed in the following, the Graphic Icons 144 may be but are not necessarily all created to the same color scheme, such as the 256 color standard used in Microsoft Windows, so that they can be displayed simultaneously, and in certain implementations the final color compatibility may be achieved by a color conversion just preceding the display of the icons to a user. Finally, and in addition to the above described advantages, each display of Graphic Icons 144, such as a directory or folder in the directory, will, as a whole, present a certain distinctiveness because of its near-unique combination and placement pattern of Graphic Icons 144, thereby providing the user with a further visual aid for looking for, remembering and recognizing individual Graphic Icons 144.

DEPR:
Finally in this regard, it should be noted that Visual Link Capture
Engine 138 will perform a conversion of the Original Image 210 from the
received color format to the chosen 256 color format before the
Grayscale Image 212 is generated from the Original Image 210, so that
the generation of Grayscale Images 212, and all subsequent operations,
including the final generation of the Graphic Icon 144, are performed in
a standard manner. As illustrated in FIG. 2A, it should also be noted
that it may be desirable to display an image of the Graphic Icon 144 or
potential Graphic Icons 144 during operation of Visual Link Capture
Engine 138, such as in the implementation of Visual Link Capture Engine
138 used in Local Server 112 where the user is actively interacting with
the system. In these applications the presently preferred implementation
of Visual Link Capture Engine 138 generates and displays a temporary
representation of the Graphic Icon 144 or potential Graphic Icons 144
being considered or generated to the user using the original color
format of the Original Image 210, thereby avoiding the need to perform a
color format conversion for a temporary display. This image or
representation of the Graphic Icon 144 is not stored or saved, however,
and only the 256 color format final Graphic Icon 144 is stored for later
use.

DEPR:
In alternate embodiments, however, the search process may be performed
with images having less or more reductions, depending upon the
processing power and speed of Local System 112 or Server System 214 and
the time available to process each image. It should be noted, in this
regard, that the loss of quality of result appears not be significant
for greater reductions in image size as the object of the search is only
to identify regions of strong, bold image. Larger images are desirable,
however, at least in those implementations providing the user with a
display of the proposed Graphic Icon 144 areas under consideration, as
providing a more legible and detailed image to the user, and the
modifications to Processing Program 312, and to Find Area Program 314,
to generate and use images having greater or lesser reductions will be
well understood by those of ordinary skill in the relevant arts.

DEPR:
According to the present invention, Visual Links Organizer 166 provides
a solution to these problems by providing a mechanism for efficient
packing any arbitrary collection of Graphic Icons 144 having various
dimensions and aspect ratios objects, or other visual display objects
such as conventional icons or photographs of electronic mail recipients
of various sizes and/or shapes into a display area.

DEPR:
As has been discussed with reference to FIG. 1A, Local System 112
includes a Visual Links Control 164 and a Visual Links Organizer 166,
both of which are associated with and operate in association with Web
Access Program 162, and associated with Visual Links Control 164 and
Visual Links Organizer 166 is a Visual Links Library 168 for storing
Visual Links 142, which include Graphic Icons 144. As discussed, Visual
Links Control 164 operates to interface and integrate Visual Links 142,
Visual Links Organizer 166 and Visual Link Capture Engine 138, if
present, into Web Access Program 162, and allows a user to access the
target of a Visual Link 142 and to save a Visual Link 142 in Visual
Links Library 168 or a file. Visual Links Organizer 166, in turn, allows
a user to create and edit Visual Links 142, to store Visual Links 142 in
Visual Links Library 168, and to otherwise manage Visual Links 142 and
Visual Links Libraries 168. Visual Links Organizer 166, which will be
described in detail further below, also allows a user to organize the
display of Visual Links 142 in a Visual Links Library 168, for example
by displaying Graphic Icons 144 in one or more display windows or areas.

DEPR:
In this regard, Layout Generator 410 is responsive to Layout Definition
Inputs 416, each including a Display Space Definition 418a containing a

specification of a selected display area, such as 12 units by 12 units, and a Visual Object Definition 418b containing a specification of the numbers, sizes and aspect ratios of visual objects to be displayed therein, for generating one or more corresponding Layouts 420 which are encoded as Plans 424, each containing a description of a layout, or organization, of the specified visual objects in the specified display space. Plans 424 are then stored in Layout Table 412, where they may be accessed by Display Generator 414 to generate a Visual Display 426 of a specified display area containing a set of identified specific Graphic Icons 144 or other visual objects conforming with the corresponding Visual Object Definition 418b as to number, size and aspect ratio.

DEPR:
Display Generator 414 is, in turn, responsive to Display Definition Inputs 428A containing a Display Space Definition 418a provided, for example, by a user or by another program operating through Visual Links Control 164 or from a Visual Link Display Memory 428B associated with Visual Links Organizer 166 for storing information relating to the display capabilities of Local System 112, and specifying the display area to be used for displaying a set of Graphic Icons 144 or other visual objects. Display Definition Inputs 428A also include a set of Visual Object Identifiers 430, such as pointers to specific Graphic Icons 144 residing in Visual Links Library 168 and identifying members of a set visual objects conforming with the corresponding Visual Object Definition 418a that are to be displayed in the defined display area. In this regard, Visual Object Identifier 430 may be provided by a user of another program or, more probably from Visual Links Display Memory 428B because a user will generally use Visual Links Organizer 166 to organize Visual Links 142 into groups of related Visual Links 142 and will store the identifications of the Visual Links 144 as groups in Visual Links Display Memory 428B. Display Generator 414 is then responsive to Display Definition Inputs 428 for indexing Layout Table 412 with Display Definition Inputs 428, reading one or more corresponding Plans 422 therefrom, and generating a Display 428 of the identified Graphic Icons 144 or other visual objects in the specified display area and according to the selected Plan 424.

DEPR:
The operation of Layout Generator 410 may be illustrated with reference to FIG. 4B, which illustrates an exemplary Layout 422 generated by Layout Generator 410. In this example, the Display Space Definition 418a specifies a display area of 12 by 12 units and Visual Object Definition 418b has specified that the visual objects to be displayed therein shall include three 6-high by 2-wide Graphic Icons 144, five 4-high by 3-wide Graphic Icons 144, two 3-high by 4-wide Graphic Icons 144, and one 2-high by 6-wide Graphic Icon 144, with 12 square units of unused space occurring in the resulting Layout 422.

DEPR:
Finally, the speed and efficiency of Layouts Generator 430 and thus of the subsequent processes described above may also be increased by additional processes primarily intended for use with large screens, for example, greater than 12.times.12. In these additional processes, Layouts 420 are composed by dividing the screen into two or more smaller screens, generating solutions for the smaller screens, and generating the solution for the original large screen by combining the solutions for the smaller screens. In this embodiment, as illustrated in FIG. 4E-5 and primarily for use with large screens, Layout Generator 410 will further include a Screen Sub-Area Divider 472 connected from Possible Layout Generator 429 which divides each screen, such as a 13.times.12 screen, into two or more smaller screens or sub-areas, for example, (n).times.12 and (13-n).times.12 wherein n=5, 6, 7. Screen Sub-Area Divider 472 then provides the smaller sub-area screens to Possible Layout Generator 429, which uses each sub-area screen independently as a display area for the generation of corresponding Layouts 420.

DEPR:
In addition to representing a document, file, location or recipient, for example, in a visual index of documents, files, locations or recipient,
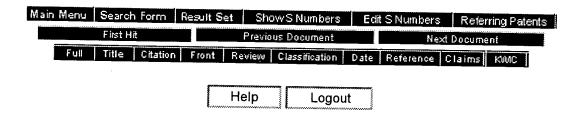
a Graphic Icon 144 is a computer programming construct which permits a small bitmapped picture, that is, a Graphic Icon 144, to serve as an active button on the screen of a World Wide Web browser, electronic mail program or other application program. A user may then initiate access to the document, file, location or recipient for a corresponding purpose by "clicking" on the button. As has been described, Graphic Icons 144 enable users to more readily and easily recognize and remember a Web site, document, file, location or recipient, by providing a representative visual representation of the Web site, document, file, location or recipient, than do text indicators or, for example, ASCII string universal resource locators (URLs).

DEPV:
KeyWords 136=web browser interface icon button visual internet bitmap compression thumbnail

DEPV:
Category=browsers

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Document Number 3

Entry 3 of 4   File: USPT   May 20, 1997

DOCUMENT-IDENTIFIER: US 5631825 A
TITLE: Operator station for manufacturing process control system

BSPR:
In carrying out the above and other objects, the operator station of the
present invention includes at least one dedicated process control
computer (PCC) for monitoring and controlling at least one SEQUENCE of
the manufacturing process, communication means for two-way communication
of process data between the operator station and the PCC, display means
including information relating to one or more SEQUENCES of the process
controlled by one of the PCC and display means including information
relating to one or more SEQUENCES of the process controlled by a second
process control computer, data input means for selecting one of the
SEQUENCES controlled by one of the PCCs and another SEQUENCE controlled
by a second of the PCCs, and logic for displaying information in the
SEQUENCE display area corresponding to each of the selected SEQUENCES.

BSPR:
The operator station of the present invention may also include secondary
display means including at least one window defining a display area
including selected information relating to the manufacturing process,
data input means for selecting one of the SECTIONS displayed in the
first window of the first display and for selecting the information to
be displayed on the second display, and logic for displaying selected
information in at least one window on the second display means.

BSPR:
The display means may also further include a flowsheet display area for
displaying at least one graphic sheet including a graphic representation
of the portion of the process, data input means for selecting one of the
graphic sheets for display in the flowsheet display means, and logic for
displaying information in the flowsheet display area corresponding to a
selected one of the graphic sheets.

BSPR:
The display means may also further include a trend display area
including at least one graph displaying the value of a selected process
primitive for a preselected period of time.

BSPR:
The operator station of the present invention also may include
information displayed in the SEQUENCE display area including a SEQUENCE
indicator for each SEQUENCE in a preselected one of the SECTIONS
supervised by the operator station. Each SEQUENCE indicator preferably
includes text identifying the SEQUENCE by name, a status indicator, a
CSF indicator symbol, a Current Step Number, a Hold-in-Step indicator,
an Active Acknowledged Alarm Number, a shutdown flag indicator, an
emergency flag, a Min/Max alarm indicator, and an unacknowledged alarm
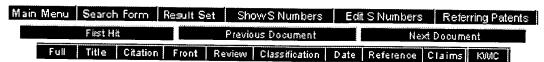attention indicator all as hereinafter further defined.

BSPR:
The operator station of the present invention also preferably includes

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Document Number 1

Entry 1 of 4   File: USPT   Oct 26, 1999

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US-PAT-NO: 5973692
DOCUMENT-IDENTIFIER: US 5973692 A

TITLE: System for the capture and indexing of graphical representations
of files, information sources and the like
DATE-ISSUED: October 26, 1999

INVENTOR-INFORMATION:
NAME                        CITY          STATE  ZIP CODE  COUNTRY
Knowlton; Kenneth Charles   Merrimack     NH     03054     N/A
Miliefsky; Gary Steven      Tyngsborough  MA     01879     N/A

APPL-NO: 8/ 814118
DATE FILED: March 10, 1997

INT-CL: [6] G06 F 3/00
US-CL-ISSUED: 345/348
US-CL-CURRENT: 345/348
FIELD-OF-SEARCH: 345/348, 345/349, 345/335, 345/342, 345/346, 345/356,
345/357, 345/969, 395/200.53, 395/200.54, 395/200.31, 395/200.33,
395/200.47, 707/104

REF-CITED:
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U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
5572643	November 1996	Judson	395/200.48
5642490	June 1997	Morgan et al.	345/342
5701451	December 1997	Rogers et al.	707/1
5721851	February 1998	Cline et al.	345/349
5724506	March 1998	Cleron et al.	395/200.6
5724595	March 1998	Gentner	707/501
5727129	March 1998	Barrett et al.	707/10
5737560	April 1998	Yohanan	345/349
5737619	April 1998	Judson	707/500
5740549	April 1998	Reilly et al.	705/14
5781189	July 1998	Holleran et al.	345/335

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ART-UNIT: 273
PRIMARY-EXAMINER: Kim; Matthew M.
ASSISTANT-EXAMINER: dela Torre; Crescelle N.
ATTY-AGENT-FIRM: Clapp, Esq.; G. D.
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ABSTRACT:

A visual link mechanism residing in a local system for identifying

addresses of locations in the plurality of remote systems wherein the local system is connected through a network to the plurality of remote systems. The visual link mechanism includes a visual link library and a network access mechanism responsive to a visual link including a displayable graphic icon for accessing the location represented by a selected graphic icon. Various structures of visual links are described, each being an entity existing independently of the system environment in which it resides, and the network access mechanism includes a layout table for storing a plurality of plans for arranging and displaying a plurality of visual link graphic icons in a display, a visual links organizer, a visual link screen saver, and a hash protection mechanism for detecting the unauthorized construction or modification of visual links or other forms of files. Also described is a visual link capture engine for extracting graphics information from a data file and generating a corresponding graphic icon and a display layout generator for generating display layouts of sets of predetermined numbers of displayable visual objects.
16 Claims, 42 Drawing figures

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data input means for selecting one of the SEQUENCE indicators displayed in the SEQUENCE display area and logic for displaying additional numerical data corresponding to preselected parameters for that SEQUENCE. The additional preselected parameters may include the name of the current step of the SEQUENCE of the process, the time in the current step, the current recipe number, the next recipe number, the number of active shutdown alarms, the number of active emergency alarms, the number of active warning alarms, the number of active alert alarms, the number of active request alarms, the number of active digital and/or analog inputs in manual mode, and the number of digital and/or analog outputs in manual mode.

BSPR:
"Pop-up menus" are windows including lists which appear on the display when a specific graphic icon or an area of an icon is selected. For example, clicking on a common element anywhere that the element appears in the operator station display will invoke a common element pop-up menu.

BSPR:
A Main Menu is also presented upon startup, and preferably remains in a fixed location and size on the operator station's secondary display. This Main Menu contains a list of operator commands which allow the operator to create additional flowsheet windows, trend windows, event log browser windows, or to access common elements and other operator-station-supported functions.

BSPV:
Reviewing the operator station's event log of PCC system messages over a given time period, based on specified filtering criteria (in the Event Browser Window).

DRPR:
FIG. 29 is a typical Event Browser Window;

DEPR:
It should be noted that variables can be grouped. Any variable set which has been defined as a group can be displayed as a group by a procedure first initialed by clicking on a process element associated with any one of the variables in that group in a flowsheet (or anywhere it can be accessed) to invoke the relevant common element pop-up menu. Once invoked, the "Remember ID" command may be selected to store the variable temporarily as a pointer to the group. By then clicking on the color box pop-up menu 246, the "Add Group" command may be invoked to display the group relating to the temporary pointer and create new trend lines for that group of variables in the line graph 212. It will be appreciated by those skilled in the art that by assigning variables to groups, variables having close interaction or inter-dependence within the process flow, may be quickly and easily displayed to monitor a specific segment of the process.

DEPR:
Referring again to FIG. 22, the time span of the line graph 212 is preferably indicated in the time span box 230. The total time span viewed may be specified by the operator by calling a line graph pop-up menu 232 which may be activated by clicking anywhere on the graph area of the window 212. When activated, the line graph pop-up menu appears superimposed on the graph where indicated at 234. The line graph pop-up menu 232 preferably provides options for manipulating the display format for the graph area.

DEPR:
Other trend window commands are preferably included in a line graph pop-up menu 232 which may be invoked by clicking anywhere in the graph area of the line graph 212, and appears superimposed over the line graph 212 at, for example, 234. The line graph pop-up menu 232 includes commands useful in manipulating the display format for the selected graph area. The menu may include a "Time Span" command which sets the magnitude of the time span for the line graph 212; this time span is

indicated in the time span box 230. The menu further includes a "Set
Display Time" command which sets the start point display time for all of
the trend lines in the line graph 212; this start point is indicated at
238. It will be appreciated by those skilled in the art that these two
commands can be used in combination to effectively define the display
time range to display the trend line of the PCC variable for a selected
historical period having both the beginning time and ending time prior
to the current time. This menu also typically includes a "Glossaries"
command which provides a one-line glossary for each of the trended
variables in a displayed set. Another command preferably included on the
line graph pop-up menu 232 is "Grid." When selected, "Grid" cascades to
another menu which provides an option to display or not to display the
T-axis and/or Y-axis grid lines on the line graph 212.

DEPR:
In the preferred embodiment of the operator station 20 of the present
invention, AME information is presented to the operator via six windows.
There are four windows that display information relating to Alarm/Manual
Variables--the Unacknowledged Alarm Overview Window (FIG. 25), the
Active Alarms Window (FIG. 26), the Elements-In-Manual Window (FIG. 27,
and the Alarm Grid Flowsheet Window (FIG. 28). There are preferably at
least two windows that display Event information--the Event Browser
Window (FIG. 29), and the Real-Time Event Capture Window (FIG. 30).

DEPR:
Referring now to FIG. 29, the operator station 20 of the present
invention also preferably includes an Event Browser Window 286 which
allows the operator to browse through a history of various events that
have occurred in the process monitored by the operator station 20 within
a preselected time period, such as the last 24 hours. An Event Browser
Window 286 maintains an event log list including all incoming events.
The events are listed in chronological order as they have occurred with
most recent events depicted at the bottom of the event log file
displayed in the event log box 288. In the preferred embodiment, more
than one Event Browser Window 280 can be created. The window preferably
appears on the secondary display 28 and can be moved, shrunk, covered by
other windows, or closed by the operator. The Event Browser Window 286
displays only a historical log; it does not capture new events as they
occur. Filtering is preferably provided to permit a selected view into
the event log file. In addition, the operator is allowed to specify a
starting time and stopping time defining the extent of the historical
record displayed in the window. As with the other AME information
windows, scroll bars 278 may be provided to allow for viewing of an
event log that is larger is size than the event log box 288.

DEPR:
The Event Browser Window 286 preferably also includes a View menu which
may be activated via the menu bar 290. When activated, the View menu
provides access to the "Filter Criteria" command which, when activated,
displays a filtering dialog box which can, in turn, be utilized to
implement the filtering as described above. Based upon the event
categories chosen during filtering, the following types of event
information can be presented in, or excluded from, the Event Browser
Window 286:

DEPR:
As with the other AME windows, filtering may be turned on or turned off
via radio buttons 292, 294 provided in the Event Browser Window 286.

DEPR:
The Event Browser Window 286 initially appears empty on the secondary
display 28. The operator is then prompted to choose a time range for
event after which an unfiltered events log file for that time range is
created and displayed.

DEPR:
Referring now to FIG. 30, the operator station 20 of the present
invention also preferably includes a Real-Time Event Capture Window 296
which displays some (if filtered) or all of the events as the occurrence

of these events is transmitted from the PCCs to the operator station 20. As with the Event <u>Browser</u> Window 286, the events are listed in an Event Capture List Box 298 provided with scroll bars 278 to allow viewing of a list greater in size than the Event Capture List Box 298. Also, as with the Event <u>Browser</u> Window 286, more than one Real-Time Event Capture Window 296 may be created, and the window(s) may be moved, resized, shrunk to an icon, covered by other windows, or closed by the operator. Unlike the Event <u>Browser</u> Window 286, the Real-Time Event Capture Window 296 does not display historical data. Events are displayed as the information is received by the operator station 20 from the PCC, with the most recent event preferably appearing at the bottom of the window. As with the Event <u>Browser</u> Window 286, no sorting is allowed in this window. Filtering is provided to allow the operator to select a subset of events in real-time via the filter dialog box invoked by activating the View menu from the menu bar 300 in the same manner described above in connection with the Event <u>Browser</u> Window 286.

DEPV:
The "Event <u>Browser</u>" command creates a new Event <u>Browser</u> Window on the secondary display 28.

CLPR:
2. The operator station of claim 1 wherein the display means further includes a window defining a flowsheet <u>display area</u> including at least one flowsheet including a graphic representation of a portion of the process.

CLPR:
3. The operator station of claim 1 wherein the display means further includes a window defining a trend <u>display area</u> including at least one graph displaying the value of at least one selected process variable for a preselected period of time.

CLPV:
a data input device for selecting one of the SECTIONS displayed in the SECTION <u>display area</u>; and

CLPV:
logic for displaying information in the SEQUENCE <u>display area</u> corresponding to all of the SEQUENCES in the selected SECTION of the process.

CLPV:
a data input device for selecting one of the SECTIONS displayed in the SECTION <u>display area</u>; and

CLPV:
logic for displaying information in the SEQUENCE <u>display area</u> corresponding to all of the SEQUENCES in the selected SECTION of the process.

CLPV:
a data input device for selecting one of the SECTIONS displayed in the SECTION <u>display area</u>; and

CLPV:
logic for displaying information in the SEQUENCE <u>display area</u> corresponding to all of the SEQUENCES in the selected SECTION of the process.

CLPV:
data input means for selecting one of the SEQUENCE indicators displayed in the SEQUENCE <u>display area,</u> and

CLPV:
a data input device for selecting one of the SECTIONS displayed in the SECTION <u>display area</u>; and

CLPV:

logic for displaying information in the SEQUENCE display area corresponding to all of the SEQUENCES in the selected SECTION of the process.

CLPV:
a second window defining a display area for displaying information relating to one or more SEQUENCES of the process;

CLPV:
a second window defining a display area for displaying information relating to one or more SEQUENCES of the process;

CLPW:
a first window defining a display area including at least one infological object which is a composite derived from selected parameters associated with a SECTION, and

CLPW:
a second window defining a display area including at least one infological object which is a composite derived from selected parameters associated with a SEQUENCE.

CLPW:
a SECTION display area including information relating to at least one of the SECTIONS of the process, the information including a SECTION indicator for at least one of the SECTIONS supervised by the operator station, the SECTION indicator comprising text identifying the SECTION by name and graphic indicia of the overall success of the SECTION, the graphic indicia including a circle divided into two contrasting shades forming a pie chart wherein the area of one of the shades varies in size as a function of the current condition of operation of the SECTION, and a radial line segment that indicates the trailing average of the condition of operation of the SECTION, and

CLPW:
a SEQUENCE display area including information relating to one or more SEQUENCES of the process;

CLPW:
a SECTION display area including information relating to each of one or more SECTIONS of the process, the information including a SECTION indicator for each SECTION supervised by the operator station, the SECTION indicator comprising a text identifying the SECTION by name, graphic indicia representing the critical success factor symbol, graphic indicia representing the status of selected shutdown flags in the SECTION, graphic indicia representing the status of selected emergency flags in the SECTION, graphic indicia representing the status of selected alarms, and

CLPW:
a SEQUENCE display area including information relating to one or more SEQUENCES of the process;

CLPW:
a SECTION display area including information relating to at least one of the SECTIONS of the process, and

CLPW:-
a SEQUENCE display area including information relating to one or more SEQUENCES of the process, the information including a SEQUENCE indicator for at least one of the SEQUENCES supervised by the operator station, the SEQUENCE indicator comprising text identifying the SEQUENCE by name and graphic indicia of the overall success of the SEQUENCE, the graphic indicia including a circle divided into two contrasting shades forming a pie chart wherein the area of one of the shades varies in size as a function of the current condition of operation of the SEQUENCE, and a radial line segment that indicates the trailing average of the condition of operation of the SEQUENCE;

CLPW:
a SECTION <u>display area</u> including information relating to at least one of the SECTIONS of the process, and

CLPW:
a SEQUENCE <u>display area</u> including information relating to at least of the SEQUENCES of the process, the information including a SEQUENCE indicator for each SEQUENCE in a preselected one of the SECTIONS supervised by the operator station, the SEQUENCE indicator comprising text identifying the SEQUENCE by name, a status box symbol, a critical success factor indicator symbol, a shutdown flag symbol, an emergency flag symbol, a Min/Max alarm symbol, and an unacknowledged alarm attention symbol;

CLPW:
a first window defining a <u>display area</u> including information relating to at least one SECTION of the process, and wherein said information includes a SECTION indicator for at least one of the SECTIONS supervised by the operator station, the SECTION indicator comprising text identifying the SECTION by name and graphic indicia of the critical success factor representing overall success of the SECTION, the graphic indicia including a circle divided into two contrasting shades forming a pie chart wherein one of the shades defines a pie chart portion which varies in size as a function of the `current value of the critical success factor, and a radial line segment that indicates the trailing average of the critical success factor;

CLPW:
a first window defining a <u>display area</u> including information relating to at least one SECTION of the process, the information including a SECTION indicator for each SECTION supervised by the operator station, the SECTION indicator comprising text identifying the SECTION by name, a status box symbol, a critical success factor indicator symbol, a shutdown flag symbol, an emergency flag symbol, a Min/Max alarm symbol, and an unacknowledged alarm attention symbol, and

CLPW:
a first window defining a <u>display area</u> including information relating to at least one SECTION of the process;

CLPW:
a second window defining a <u>display area</u> for displaying information relating to one or more SEQUENCES of the process, and wherein the information includes a SEQUENCE indicator for at least one of the SEQUENCES supervised by the operator station, the SEQUENCE indicator comprising text identifying the SEQUENCE by name and graphic indicia of the critical success factor representing overall success of the SEQUENCE, the graphic indicia including a circle divided into two contrasting shades forming a pie chart wherein one of the shades varies in size as a function of the current value of the critical success factor, and a radial line segment that indicates the trailing average of the critical success factor;

CLPW:
a first window defining a <u>display area</u> including information relating to at least one SECTION of the process;

CLPW:
a second window defining a <u>display area</u> for displaying information relating to one or more SEQUENCES of the process, the information including a SEQUENCE indicator for each SEQUENCE in a selected SECTION supervised by the operator station, the SEQUENCE indicator comprising text identifying the SEQUENCE by name, a status box symbol, a critical success factor indicator symbol, a shutdown flag symbol, an emergency flag symbol, a Min/Max alarm symbol, and an unacknowledged alarm attention symbol;

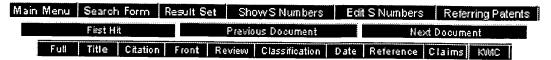| Main Menu | Search Form | Result Set | Show S Numbers | Edit S Numbers | Referring Patents |

First Hit	Previous Document	Next Document

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Document Number 2

Entry 2 of 4   File: USPT   Jul 27, 1999

DOCUMENT-IDENTIFIER: US 5930808 A
TITLE: Data conversion apparatus for data communication system

DRPR:
FIG. 26 shows the image of FIG. 23 displayed on the display screen by using a conventional WWW browser;

DRPR:
FIG. 27 shows the image of FIG. 23 displayed on the display screen by using a conventional WWW browser;

DEPR:
`TOKYO ` on line 319 of FIG. 3 indicates that the character string "TOKYO" is linked to the HTML document 501 "Tokyo.html" which is shown in FIG. 5. Here, character strings or images which are linked to other files, such as this character string "TOKYO", are called hot spots or anchor points. As one example, if a user uses the mouse to select the hot spot "TOKYO" which displayed on a computer monitor by a browser, the HTML document 501 "Tokyo.html" will be read by the browser and is displayed on the screen. Here, the attribute of tag "", "HREF=", represents a link destination, and the attribute content of "HREF=", in this case "Tokyo.html", indicates a file name for the link destination file.

DEPR:
The transmission data generating unit 112 treats one set of the display image information to be generated along with the accompanying audio information and link information as a single transmission data file, based on one HTML document. Here, the transmission data generating unit 112 establishes a storage area in each of the display image information storing unit 123, the audio information storing unit 124, and the link information storing unit 125 which are provided in the transmission data holding unit 113 (described later) so that the display image information, audio information, and link information to be included in one transmission data file are interrelatedly stored. Hereinafter, the storage areas in the display image information storing unit 123, the audio information storing unit 124, and the link information storing unit 125 are respectively called the display image information storage area, the audio information storage area, and the link information storage area.

DEPR:
The transmission data generating unit 112 assigns a same identification number to the display image information storage area, the audio information storage area, and the link information storage area used for storing the corresponding kinds of information in a same transmission data file. Here, the transmission data generating unit 112 manages the audio information and link information in a same transmission data file as separate files which are given the same identification number. This identification number may correspond to the serial number in column 201 of the file list, which in turn corresponds to the file names of the present files which are given in column 203.

DEPR:

For tags which are not "", "▪", or "", the transmission data
generating unit 112 sets a flag showing the interpreted control
operation in the flag storage area provided in the work area and stores
the character strings between the start tag "<>" and the corresponding
end tag "" into the character string storage area in the work area so as
to correspond to the set flag. The storage of character strings between
a pair of corresponding tags is performed in the same way as the storage
of the character strings included inside the tags themselves. The
transmission data generating unit 112 converts the character strings in
the character string storage area into text image using the fonts in one
of the font files and arranges the text image in accordance with the
control operation represented by the current flag to generate display
image information. This generated display image information is then
added to the display image information storage area provided in the
transmission data holding unit 113. Here, when a start tag "" is
followed, not by a character string, but by another start tag "", a flag
is first set for the former tag in the flag storage area, before the
processing is performed for the control operation indicated by the
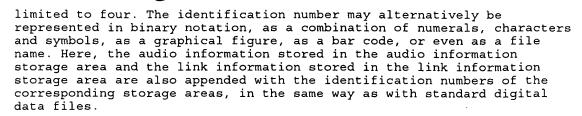latter tag.

DEPR:
If, for example, the file name extension is ".gif", the transmission
data generating unit 112 decompresses the image information file under
GIF to convert the image information file into the appropriate format.
If a preceding flag is set for a control operation to be performed on
the converted image, the converted image is arranged in accordance with
this control operation to generate display image information, otherwise
the display image information is generated with the converted image
being arranged in accordance with an initial setting. This generated
display image information is then added to the display image information
storage area.

DEPR:
If the link destination file is not an audio file, the transmission data
generating unit 112 generates a text image for the character string
between tags and , and arranges the text image at a display position
indicated by a preceding flag, or alternatively at a display position
specified by an initial setting, with a space being reserved for
displaying a cursor. By doing so, the transmission data generating unit
112 generates display image information which is then added to the
display image information storage area provided in the transmission data
holding unit 113. The transmission data generating unit 112 then
calculates the X-Y coordinates for the space reserved for the cursor
display position and refers to the hot spot information 702 in the link
information table 700 to generate hot spot information from the
calculated X-Y coordinates and the "link destination file name"
specified by the attribute "HREF=" of tag "". In doing so, the
transmission data generating unit 112 refers to the file list 200 and
finds the serial number 201 corresponding to the file name in column 203
which in turn corresponds to the link destination file name of tag "",
before writing this serial number 201 into the hot spot information as
the file identification number. If the link destination file name is not
present in the file list 200, the transmission data generating unit 112
writes the file name of the current file into the hot spot information.
After doing so, the transmission data generating unit 112 adds the
generated hot spot information to the link information storage area
provided in the transmission data holding unit 113.

DEPR:
After completing all of the above processes for an HTML document, the
transmission data generating unit 112 writes a graphic representation of
the identification number of the display image information area at a
predetermined position in the non-displayed area of the display image
information stored in the display image information area. In the present
embodiment, the identification number has been described as being a
four-figure decimal value, although the number of decimal digits is not

limited to four. The identification number may alternatively be
represented in binary notation, as a combination of numerals, characters
and symbols, as a graphical figure, as a bar code, or even as a file
name. Here, the audio information stored in the audio information
storage area and the link information stored in the link information
storage area are also appended with the identification numbers of the
corresponding storage areas, in the same way as with standard digital
data files.

DEPR:
Next, the transmission data generating unit 112 reads the tag "

" on line 312 and refers to the tag table
to interpret its content. On doing so, it
sets the headline flag in the flag storage
area in the work area. Here, the headline
flag shows that the character string
following the "

" tag is a headline and so should be
displayed using a headline font. The
characters in the character string after
the "

" tag are then written one character at a
time into the character string storage
area until the "

" tag appears, which in the present case
results in the character string
"WEATHER REPORT" being written
into the character string storage area
and being converted into display image

information using the headline font.
This generated display image
information is then added to the <u>display</u>
<u>image information storage area</u> set in the
transmission data holding unit 113.
After this, the headline flag in the work
area is reset, the character string
"WEATHER REPORT" is deleted from
the character string storage area, and
the character string "H1" is deleted
from the tag storage area.

DEPR:

The transmission data generating unit
112 then reads the tag "
" on line 315 and arranges the bitmap
image converted from image
information 401 in accordance with the
centering flag set in the work area. The
display image information thus
generated is then added to the <u>display</u>
<u>image information storage area</u> in the
transmission data holding unit 113,
before the centering flag in the work
area is reset.

DEPR:
The transmission data generating unit 112 then reads the "

" tag on line 316 and sets the paragraph flag. The paragraph flag shows that the character strings displayed between this start tag and the

"display image information to the storage area in the transmission data holding unit 113 for <u>display image information storage area</u> 801. After this, the content of the work area is cleared as before.

DEPR:
When the extension of the file name given as the attribute of the "" tag indicates audio information, the link flag shows that processing for the audio information is to be performed so that the audio information is converted into a predetermined format and stored in the audio information storage area. When the extension of the file name given as the attribute of the "" tag does not indicate audio information, the link flag

shows that the character string between the "" and "" tags which is appended with the link by the "" tags is to be converted into an image with a two-character space provided before it as a cursor display area. The link flag also shows that display image information is to be generated for this character string in addition to hot spot information which is generated in accordance with the format of the hot spot information 702.

DEPR:

The transmission data generating unit 112 reads the character string "TOKYO" between the "display area and arranges the character string in accordance with the itemized list flag to generate display image information which it adds to the display image information storage area provided in the transmission data holding unit 113. The transmission data generating unit 112 then calculates the coordinates of the

cursor display position as (100,600), and uses these coordinates and the attribute "Tokyo.html" stored in the tag storage area of the work area to generate the hot spot information shown on line 812 of FIG. 8. After doing so, the transmission data generating unit 112 adds the generated hot spot information to the link information storage area provided in the transmission data holding unit 113. Having done so, the transmission data generating unit 112 deletes the character string "A HREF="Tokyo.html" in the tag storage area of the work area and the character string "TOKYO" in the character string storage area, in addition to resetting the link flag.

DEPR:
Next, on reading the "" tag on line 320, the transmission data generating unit 112 shifts the display position for the next display image to the following line in accordance with the item flag, and, in

the same way as with line 319, generates display image information for the character string "OSAKA", in addition to generating the hot spot information shown on line 813 of FIG. 8C. The generated display image information is then added to the display image information storage area provided in the transmission data holding unit 113 and the generated hot spot information is added to the link information storage area. After this, the transmission data generating unit 112 deletes the character string "A HREF="Osaka.html" and the character string "OSAKA", and resets the link flag.

DEPR:
Following this, the transmission data generating unit 112 finds that there is an unprocessed HTML document 501 and so sets a display image information storage area for display image information 901 and a link information storage area for link information 902 in

the transmission data holding unit 113 for storing the composite parts of the transmission data 900, in doing so giving both storage areas the identification number "0002" for the retrieval of the transmission data 900. It then reads the unprocessed HTML document 501 from the buffer of the information obtaining unit 111 and writes it into the work area.

DEPR:

The display image information storing unit 123 can be realized by RAM (Random Access Memory) or a hard disk device, and is provided with a plurality of <u>display image information storage areas</u> which are set by the transmission data generating unit 112. Each of these <u>display image information storage areas</u> stores one file of display image information which is generated by the transmission data generating unit 112.

DEPR:

"L1-Ln" are private sections according to MPEG2 standard for attaching each set of link information, with the PID "0.times.B0" having been attached to identify these as private sections. Here, identification numbers are also set in the table ID extensions to identify separate sets of link information. Each of these sets of link information is set with at least one pairing of one part of the image area of the corresponding display image and information showing a link to another display image. As one example, in "L1", the <u>display area</u> centered on the coordinates (X,Y)=(100,600) is set with the link "GOTO.sub.-- PAGE(0002)" representing a link to the display image with the identification number "0002", while the <u>display area</u> centered on the coordinates (X,Y)=(100,700) is set with the link "GOTO.sub.-- PAGE(0003)" representing a link to the display image with the identification number "0003".

DEPR:

A variety of tags can be employed in the HTML documents, and the processes represented by these tags can be performed in the same way as a conventional <u>browser</u>. Accordingly, the following explanation focuses on an example of the processing in step S1312 for the tag "" which relates to the link information which generated in a special format for this data communication system 100.

DEPR:

If the read tag is "", the transmission data generating unit 112 judges whether the link destination file specified by the attribute is an audio information file (step S1402). If it is, the processing advances to step S1407, or if not, the transmission data generating unit 112 generates display image information for the character string established in the character string storage area, in doing so leaving a <u>display area</u> for displaying a

cursor design, before adding the generated display image information to the <u>display image information storage area</u> provided in the transmission data holding unit 113 (step S1403).

DEPR:

The separating unit 151 separates display image information (including audio information) and link information from the received transmission data, and stores the separated display image information and link information in the corresponding storage areas of the read buffer 161. The identification number assigned to the <u>display image information stored in the storage area</u> is read by recognizing the image written in the predetermined part of the non-displayed area of the display image information. The identification number assigned to the link information is read in the same manner as when reading an identification number assigned to a conventional digital data file. If the read

identification number is the identification number designated by the control unit 155, the display image information (including audio information) or the link information held by the read buffer 161 is stored in the corresponding storage area in the received data holding unit 152. At this point, any audio information which is present is stored by the separating unit 151 in a corresponding storage area provided in the received data holding unit 152 at the same time as the display image information is stored, so that the audio information is gradually accumulated while the display image information with the identification number designated by the control unit 155 is repetitively transmitted. By doing so, audio information which is transmitted across a plurality of frames can be separated from the transmission data.

DEPR:

The present embodiment describes the case when in order to display WWW home pages on the Internet, the data communication system 100 uses a one-to-many TV broadcast to perform simulated bidirectional communication, so that when compared to the case when home pages are displayed by a <u>browser</u> on a personal computer, the display of the user's desired pages on the display unit 154 can be performed at a high speed which is unaffected by congestion. Since display image information is sent in a conventional TV format, the display of full color, high-resolution images can easily be achieved by the display unit 154. Also, while the display of display images generated by a <u>browser</u> for display on a TV monitor does not make full use of the components, such as the reproduction processing for display images, conventionally provided inside a TV, the present embodiment can achieve simulated bidirectional communication which makes full use of circuitry, such

as memory and decoders, conventionally provided inside a TV set.

DEPR:
HTML documents 2301 and 2401 and image 2501 are not described here since they have already been described in the first embodiment. FIGS. 26 and 27 show HTML document 2301 and image 2501 displayed by a conventional WWW <u>browser</u> on display screen 2601 of a personal computer having a resolution of 640.times.480 dots (pixels). Document 2301 is displayed as an image over two screens, namely consecutive display images 2602 and 2701. The two display images can be scrolled in the vertical direction by operating on scroll buttons 2603 and 2604 which are respectively displayed on the upper-right and lower-right corners of the screen.

DEPR:
Image generating unit 3502 judges whether the value of counter M, which is

sent from link information generating unit 3503, matches the value of k in apparatus information storing unit 3501. When they match, image generating unit 3502 writes the corresponding cursor design and the <u>display element into temporary</u> information storage unit 2208, then instructs controlling unit 2205 to write the cursor design and the display element into transmission data holding unit 113. In this way, image 3801 as shown in FIG. 38 is generated, where the number of pieces of link information does not exceed k in apparatus information storing unit 3501.

WEST

| Help | Logout |

| Main Menu | Search Form | Result Set | Show S Numbers | Edit S Numbers | Referring Patents |

| First Hit | Previous Document | Next Document |

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC |

Document Number 4

Entry 4 of 4   File: USPT   Apr 30, 1996

DOCUMENT-IDENTIFIER: US 5513306 A
TITLE: Temporal event viewing and editing system

BSPR:
In the Barker apparatus, one small active display acts as an intake
screen and is controlled by a left manual control disk of the control
system, while a second small active display acts as an outtake screen
and is controlled by a right manual control disk of the control system.
Manipulating the control disks in different manners causes contiguous
frames of a current segment of video information to be displayed as
temporary pictorial labels on the intake and outtake screens, while a
third central display provides a continuous loop display of all picture
frames from just prior to the temporary intake and Just after the
temporary outtake pictorial labels. These same control disks are then
manipulated to mark temporary pictorial labels which have been selected
by the user to represent the current segment. Selected labels for the
current segment are then displayed in a two row spatial array of passive
displays (meaning the displays are static, not animated like the active
displays) located below the active displays. The other passive displays
are used to present a spatial display of the pictorial labels associated
with the segments sequentially before and after the current segment.
Although the passive displays are arranged in two rows, each column is
limited to representing the same single sector of the video information.
A label can be comprised of a single frame of video information (such
that only one row of the passive display is utilized), or two flames,
such as the beginning frame and the ending frame (such that both rows of
the passive display are utilized). Once a label has been created, it can
be replaced in the same manner in which it was created, but cannot be
readily transformed.

DRPR:
FIG. 7 is a representation of the video log window of FIG. 5 overlaid by
a clip browser window for storing dicons created from combinations of
key frames;

DEPR:
A further adjunct of the system of the present invention is that it can
be used to create one or more dicons (variously described as dynamic
icons, digitally animated icons, or movie icons) out of select frames of
information, which can then be used in place of static key frames within
a logger row, to perform space-to-time mappings of the information being
viewed. As depicted in FIG. 7, dicons can be created in a number of
manners. A user could select a number of key frames, such as key frames
122, 124 and 126 (although the key frames need not be adjacent), and
then performs an operation command which causes the three selected key
frames to be turned into a dicon 128, such as by activating a "make
dicon" command from a pull down menu or a key sequence from a keyboard.
The dicon 128, a looping movie entirely comprised of the digitized
images of the three key frames 122, 124 and 126, would then be
automatically stored at some position on the screen, such as in a clip
browser 130, for later use within the video log. This dicon 128 could
then be inserted back into a row 132 of the video log as, for example, a

dynamic mnemonic of the video information within a particular key frame. Dicons could also be created out of the frames of information within the segment represented by a single key frame, or in other words, a key frame segment can be made into a dicon itself. With the implementation of dicons, additional control features would need to be added to the system, such as dialog boxes which allow the user to freeze the playback of the dicon, or to select the frame rate at which the frames of the dicon are displayed.

DEPR:
In FIG. 8, a simplified flow chart illustrating a method for displaying SDF's and proxies and for moving key frame markers is described. This flow chart is initiated, block 210, after the the user has been presented with the dialog box 60 of FIG. 3 to select the various parameters of the video log, and the video window 28, control window 30, and video log window 32 have been displayed on the screen 21 of the display. The magnifier for the top scan bar of the video log (VL) would then be set to the size of the storage capacity, or the present data storage size, of the laser disk to be sampled, block 212. As previously described, this flow chart could also be modified to allow the user to set other magnification ranges for the magnifier. The system then calculates the list of frames of information from the disc that are to be associated with the first row of the VL and adds that list to a to-be-displayed list (TBDL), block 214, which is a collection of frames that are to be made available for display as key frames within the appropriate area of a logger row.

CLPR:
28. The system as recited in claim 1, and further comprising a selector for selectively causing the display to display said information within a second area of said display.

CLPR:
29. The system as recited in claim 28 wherein said information comprises a plurality of image frames, and said computer is for father selectively sequentially causing the display to display said image frames within said second area, and wherein said selector includes a controller for regulating said sequential display of frames and a rate of display of said image frames being displayed within said second area.

CLPR:
35. The system as recited in claim 34, and further comprising a viewer interface for causing the display to display a log in said first area of said display by selecting a miniaturized view of said log in said second area of said display.

CLPR:
47. The method as recited in claim 44, wherein said step of accessing said first segment includes sampling said first segment to generate a first plurality of samples for display in said first portion of said first area and said method further includes a step of moving one of said first plurality of samples from said first portion of said first area to said second portion of said first area.

CLPR:
48. The method as recited in claim 36, wherein said step of accessing a first segment of said information includes a step of sampling said information to generate a plurality of samples of information for display within said first area.

CLPR:
80. The method as in claim 76 wherein said second plurality of samples displayed in said second display area are displayed in response to a selection of a selected sample in said first display area, said selected sample being one of said first plurality of samples.

CLPR:
89. The system as recited in claim 81, and further comprising a selector for selectively causing the display to display said information within a

second area of said display, wherein said information comprises a
plurality of image frames, and wherein said computer further selectively
sequentially causes the display to display said image frames within said
second area, and wherein said selector includes a controller for
regulating said sequential display of frames and a rate of display of
said image frames being displayed within said second area.

CLPV:
a computer coupled to said display, said computer defining a first area
on said display and causing the display to display a first sample of
said information within said first area, said first sample representing
a first segment said first segment including a plurality of frames of
said display data of said information, said computer further causing the
display to display a second sample of said information within said first
area of said display, said second sample representing a second segment
said second segment including a plurality of frames of said display data
of said information, said computer further causing the display to
display a third sample of said information within said first area of
said display, said third sample representing a third segment of said
information, and said first segment being a superset of said second
segment and said third segment, said second segment being a superset of
said third segment, said first sample being a first key frame, and said
second sample being a second key frame, said computer further causing
the display to display a plurality of samples of said information, said
plurality of samples including said first sample, said second sample,
and said third sample of said information, said computer causing the
display to display said first sample in a first subarea with some of
said plurality of displayed samples and causing the display to display
said second sample and said third sample in a second subarea with some
of said plurality of displayed samples, said first area including said
first subarea and said second subarea, wherein said first subarea does
not overlap said second subarea.

CLPV:
defining a first display area, a second display area, and a third
display area, said second and third display areas not overlapping said
first display area;

CLPV:
displaying said first plurality of samples in said first display area;

CLPV:
displaying said second plurality of samples in said second display area;
and

CLPV:
displaying said third plurality of samples in said third display area.

CLPV:
a computer coupled to said display, said computer defining a first area
on said display, said computer causing the display to display on said
display a plurality of displayed samples of said information including a
first sample and a second sample, said computer causing the display to
display said first sample of said information with some of said
plurality of displayed samples within a first subarea of said first
area, said first sample representing a first segment said first segment
including a plurality of frames of said display data of said
information, said computer further causing the display to display said
second sample of said information with some of said plurality of
displayed samples within a second subarea of said first area, said
second sample representing a second segment said second segment
including a plurality of frames of said display data of said
information, said first segment being a superset of said second segment,
said first sample being a first key frame and said second sample being a
second key frame, said first area including said first subarea and said
second subarea, said first subarea not overlapping said second subarea.

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Document Number 3

Entry 3 of 4   File: USPT   May 20, 1997

```
US-PAT-NO: 5631825
DOCUMENT-IDENTIFIER: US 5631825 A

TITLE: Operator station for manufacturing process control system
DATE-ISSUED: May 20, 1997

INVENTOR-INFORMATION:
NAME                          CITY        STATE   ZIP CODE    COUNTRY
van Weele; Leonardus A.       Terneuzen   N/A     N/A         NLX
de Bruijn; Ronny P.           Jansteen    N/A     N/A         NLX
Vermeire; Roger R.            Terneuzen   N/A     N/A         NLX
Zemering; Christo             Midland     MI      N/A         N/A
Lenting; Ben                  Auckland    N/A     N/A         NZX

ASSIGNEE INFORMATION:
NAME                  CITY   STATE   ZIP CODE    COUNTRY   TYPE CODE
Dow Benelux N.V.      N/A    N/A     N/A         NLX       03

APPL-NO: 8/ 128988
DATE FILED: September 29, 1993

INT-CL: [6] G05 B 11/01
US-CL-ISSUED: 364/188; 364/146
US-CL-CURRENT: 700/83
FIELD-OF-SEARCH: 364/188-193, 364/146-147, 364/474.22-474.27, 395/155-167

REF-CITED:
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U.S. PATENT DOCUMENTS

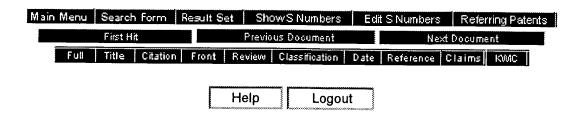| PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
1089798	March 1914	Smith	N/A
1108989	September 1914	Henry	N/A
1118597	November 1914	Taggart et al.	N/A
2340559	February 1944	Pruyn et al.	N/A
3275988	September 1966	Yetter	N/A
4001807	January 1977	Dallimonti	N/A
4115848	September 1978	Kogure et al.	N/A
4303973	December 1981	Williamson, Jr. et al.	N/A
4396977	August 1983	Slater et al.	N/A
4413314	November 1983	Slater et al.	N/A
4586144	April 1986	Fukumoto	N/A
4628470	December 1986	Baumann	N/A
4675147	June 1987	Schaefer et al.	N/A
4683549	July 1987	Takaki	N/A
4727473	February 1988	Anderson et al.	N/A
4752889	June 1988	Rappaport et al.	N/A
4792888	December 1988	Agarwal et al.	N/A
4803039	February 1989	Impink, Jr. et al.	N/A
4815014	March 1989	Lipner et al.	N/A
5168441	December 1992	Onarheim et al.	364/188

ART-UNIT: 244
PRIMARY-EXAMINER: Trammell; James P.
ATTY-AGENT-FIRM: Brooks & Kushman

ABSTRACT:

An operator station for a manufacturing process control system including
a network of at least one dedicated process control computer for
monitoring and controlling SECTIONS of the manufacturing process wherein
each SECTION includes one or more SEQUENCES of the manufacturing process,
the operator station includes a processor, a communication link to the
process control communication system, a display including a SECTIONS
window providing information relating to at least one of the SECTIONS
monitored by the operating station and a SEQUENCE window providing
information relating to one or more SEQUENCES monitored by the operator
station, a data input device for selecting a SECTION from which
information is to be displayed. The operator station may further include
a flow sheet display window which includes a graphic depiction of a
portion of the process, and a trend display window which includes current
and historical information in graphic form for selected process control
variables.
16 Claims, 34 Drawing figures

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Document Number 4

Entry 4 of 4   File: USPT   Apr 30, 1996

```
US-PAT-NO: 5513306
DOCUMENT-IDENTIFIER: US 5513306 A

TITLE: Temporal event viewing and editing system
DATE-ISSUED: April 30, 1996

INVENTOR-INFORMATION:
NAME                   CITY               STATE    ZIP CODE     COUNTRY
Mills; Michael         Cupertino          CA       N/A          N/A
Cohen; Jonathan        San Francisco      CA       N/A          N/A

ASSIGNEE INFORMATION:
NAME                   CITY        STATE   ZIP CODE   COUNTRY   TYPE CODE
Apple Computer, Inc.   Cupertino   CA      N/A        N/A       02

APPL-NO: 8/ 481194
DATE FILED: June 7, 1995
PARENT-CASE:
This is a continuation of application Ser. No. 08/225,496, filed Apr. 11,
1994, abandoned, which is a continuation of application Ser. No.
07/564,914, filed Aug. 9, 1990, abandoned.

INT-CL: [6] G06 T 1/00
US-CL-ISSUED: 395/148; 395/156, 395/161, 395/600, 395/160, 395/152
US-CL-CURRENT: 707/530; 345/352, 345/356, 345/473
FIELD-OF-SEARCH: 395/148, 395/152, 395/154, 395/155, 395/157, 395/159,
395/160, 395/161, 395/600, 345/121-122, 360/13, 360/14.1, 360/14.3,
369/27-28, 369/69, 369/83-84, 434/47, 348/232, 348/552, 348/559,
348/563-565

REF-CITED:

                        U.S. PATENT DOCUMENTS
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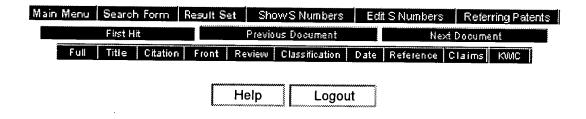| PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
4558438	December 1985	Jones et al.	367/71
4751674	June 1988	Aoyagi et al.	364/900
4763186	August 1988	Belmares-Sarabia et al.	358/22
4775935	October 1988	Yourick	364/401
4821211	April 1989	Torres	364/521
4914586	April 1990	Swinehart et al.	364/200
4943866	July 1990	Barker et al.	358/335
4951233	August 1990	Fujiwara et al.	364/523
4970664	November 1990	Kaiser et al.	364/521
5023851	June 1991	Murray et al.	368/41
5046027	September 1991	Taaffe et al.	364/521
5093907	March 1992	Hwong et al.	395/152
5101364	March 1992	Davenport et al.	395/152
5119476	June 1992	Texier	395/157
5157511	October 1992	Kawai et al.	358/335

ART-UNIT: 242
PRIMARY-EXAMINER: Zimmerman; Mark K.
ASSISTANT-EXAMINER: Feild; Joseph H.
ATTY-AGENT-FIRM: Blakely, Sokoloff, Taylor & Zafman

ABSTRACT:

A system for displaying a sequential stream of information on a single
display. The system includes a computer for defining an first area on the
display and for displaying a first sample of the information within the
first area. The first sample represents a first segment of the
information. The computer further is for displaying a second sample of
the information within the first area of the display. The second sample
represents a second segment of the information. The computer is further
for displaying a third sample of the information within the first area of
the display. The third sample represents a third segment of the
information. The first segment includes the second segment and the third
segment.
91 Claims, 12 Drawing figures

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Terms	Documents
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USPT	l16 and l22	4	L23
USPT	l20 and l21	121	L22
USPT	l7 adj5 l8	16577	L21
USPT	l7 adj5 l9	540	L20
USPT	l18 and l3	1	L19
USPT	l17 and l14	11	L18
USPT	l12 and l16	36	L17
USPT	browser	1517	L16
USPT	l3 and l14	133	L15
USPT	l10 same l11	551	L14
USPT	l3 and l12	477	L13
USPT	l10 and l11	1690	L12
USPT	l7 same l8	50481	L11
USPT	l7 same l9	4370	L10
USPT	temporary	83362	L9
USPT	area	1060348	L8
USPT	display	279510	L7
USPT	l3 or l4	27807	L6
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USPT	(345/$)![CCLS]	21981	L3
USPT	(345.$)![CCLS]	0	L2
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USPT	browser	1517	L16
USPT	l3 and l14	133	L15
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USPT	l7 same l8	50481	L11
USPT	l7 same l9	4370	L10
USPT	temporary	83362	L9
USPT	area	1060348	L8
USPT	display	279510	L7
USPT	l3 or l4	27807	L6
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USPT	(707/$)![CCLS]	6931	L5
USPT	((707/$)![CCLS])![CCLS]	6931	L4
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USPT	(345.$)![CCLS]	0	L2
USPT	(345)![CCLS]	0	L1

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Terms	Documents
l3 or l4	27807

Database: US Patents Full-Text Database ▼

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Database: US Patents Full-Text Database ▾

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l16 and l22
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USPT	l20 and l21	121	L22
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USPT	l7 adj5 l9	540	L20
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USPT	l17 and l14	11	L18
USPT	l12 and l16	36	L17
USPT	browser	1517	L16
USPT	l3 and l14	133	L15
USPT	l10 same l11	551	L14
USPT	l3 and l12	477	L13
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USPT	area	1060348	L8
USPT	display	279510	L7
USPT	l3 or l4	27807	L6
USPT	(707/$)![CCLS]	6931	L5

USPT	(707/$)![CCLS]	6931	L5
USPT	((707/$)![CCLS])![CCLS]	6931	L4
USPT	(345/$)![CCLS]	21981	L3
USPT	(345.$)![CCLS]	0	L2
USPT	(345)![CCLS]	0	L1